

Aspergillosis

Week 11

- *Aspergillus* species lead to respiratory system infections and sometimes they can also rarely cause systemic infections
- Main species that causes infections in animals are:

Aspergillus fumigatus the major agent. Beside this;

- *Aspergillus niger*,
- *Aspergillus flavus*,
- *Aspergillus terreus*,
- *Aspergillus nidulans*

A. fumigatus and *A. flavus* have **endotoxin**. *A. flavus* also synthesised a very potent toxin called aflatoxin.

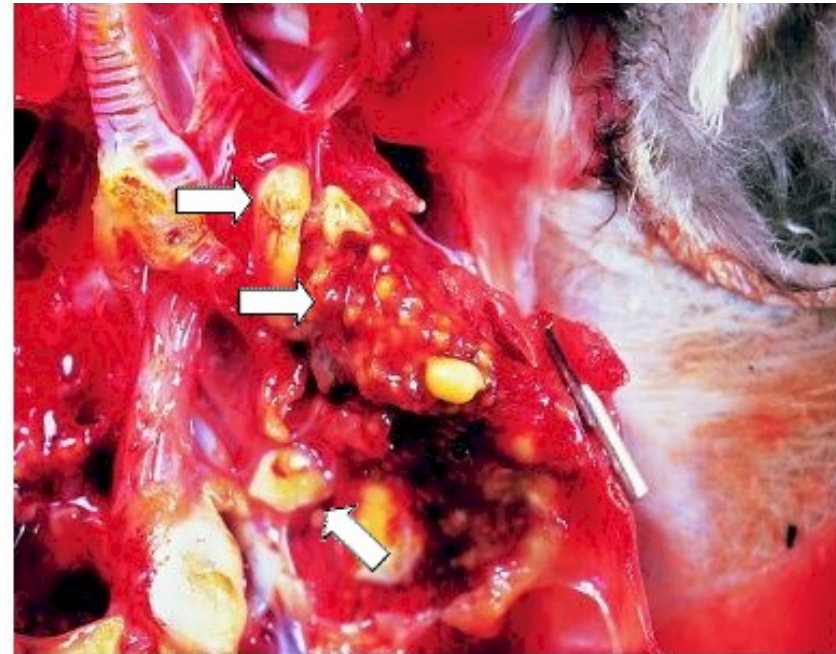
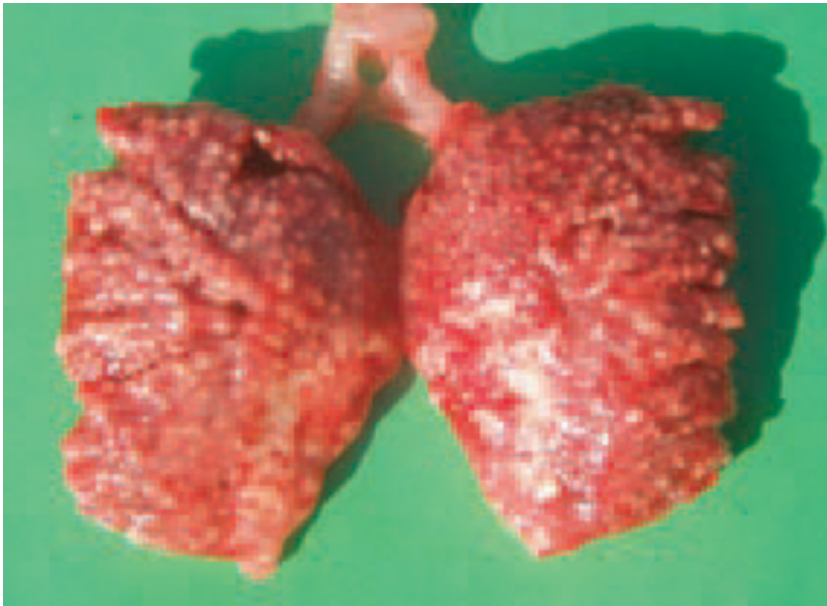
Epidemiology

- The intake of *Aspergillus* spores by inhalation leads to the frequent observation of respiratory system infections
- Spores can be observed in soil, decayed food and plants. Inhalation of these spores by the animals that are fed in these environments lead to Aspergillosis
- In the tissue and pathologic materials the conidia, coniphores and micelial elements can be seen
- All animals are susceptible. In-appropriate caring and nutrition rules are the predisposition factors for the disease
- Transmission from animal to animal is very rare in comparison to the other fungal infections

Diagnosis

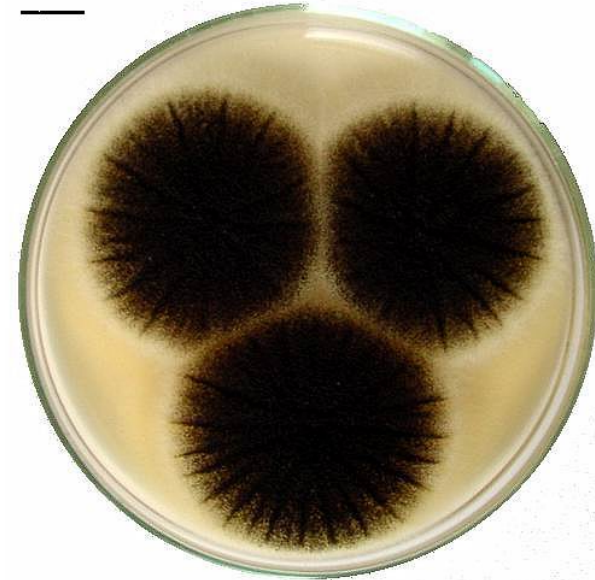
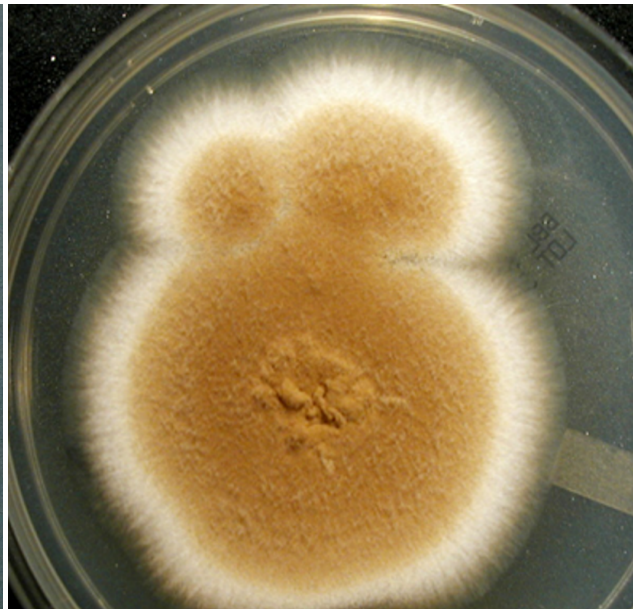
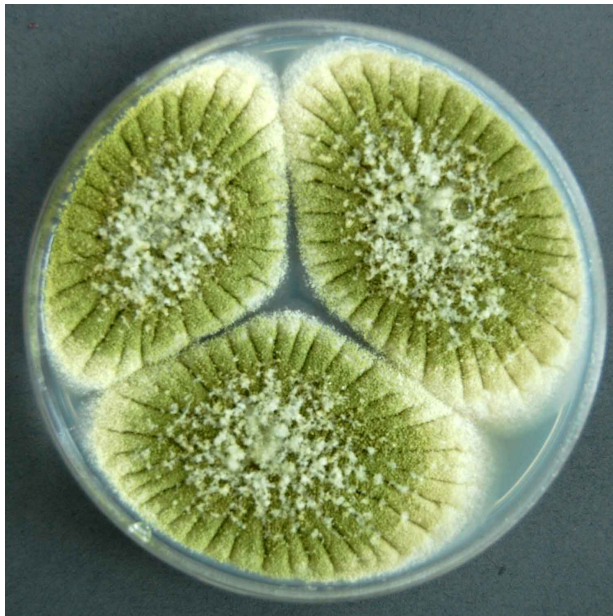
- 1) **Clinical Diagnosis:** Clinical findings are mostly observed in the respiratory and digestion systems. In some animals abortions due to the fungi can also be observed.

Aspergillus infections are frequently seen in the poultry. Acute Aspergillosis are observed in young animals, Chronic Aspergillosis is seen in adults.

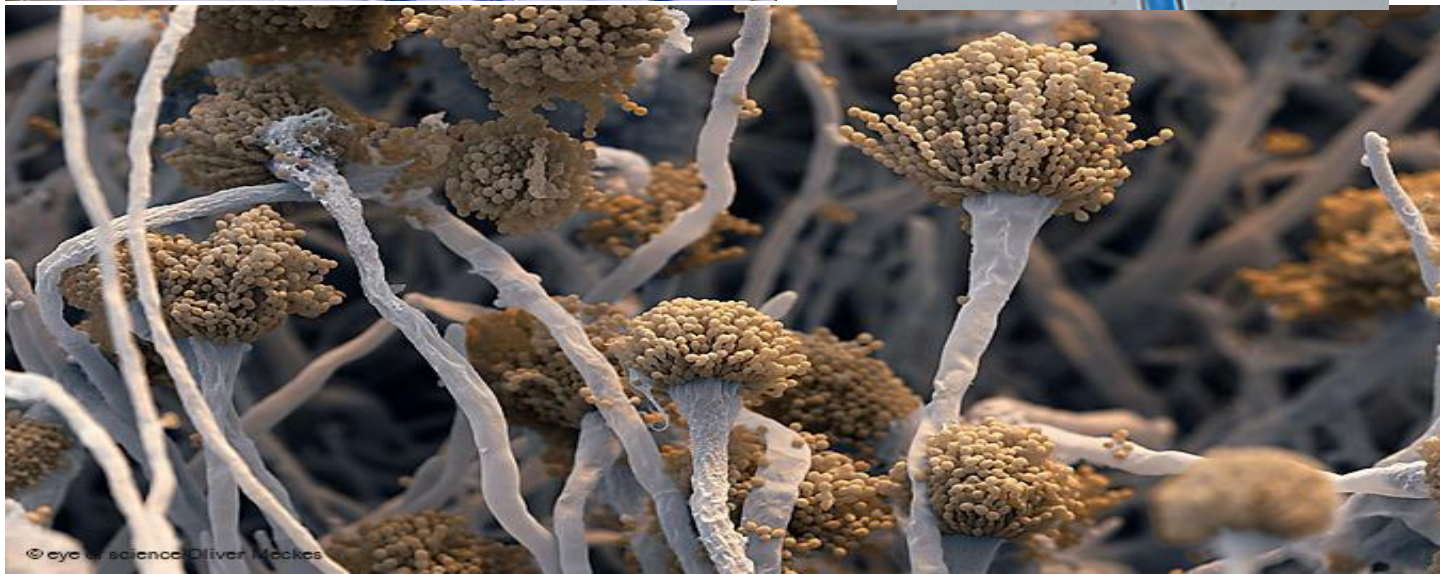
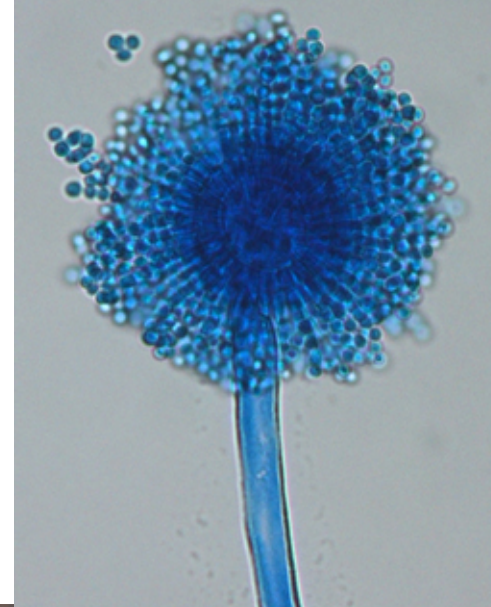
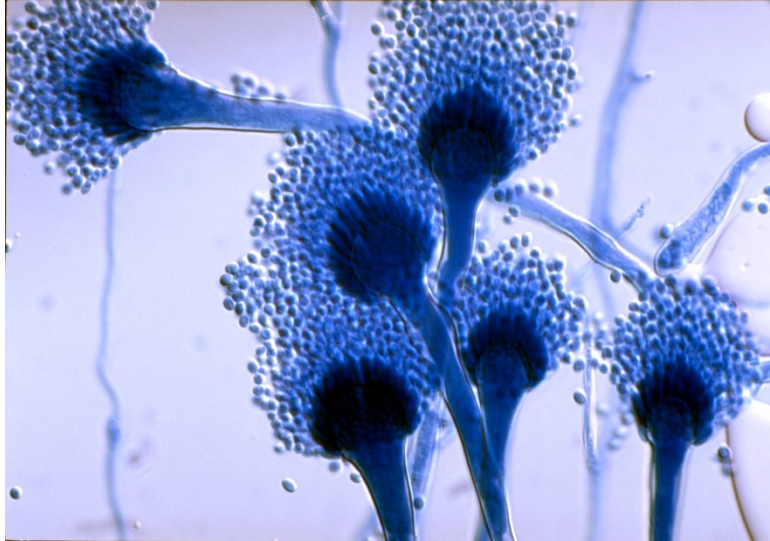


Photograph / Copyright - Milton Friend.
"Cheesy" plaques in the lungs and air sacs of a bird with aspergillosis.

- **Culture:** Tissue with lesions and other materials can be cultured on SDA with antibiotic and incubated at 25C. The colonies can be evaluated for the both macro and micro morphological characteristics.
 - In order to diagnose *Aspergillus* species the conidiophore, vesicle, sterigma and conidial chain must be evaluated. The head of the conidia must be investigated for its shape and colour; the structure of ascospores; the sequence number of sterigma; the length of conidiophore and the size of the conidium is important.



- **Microscopy:** The materials are stained and investigated for the presence of conidophores, conidia, vesicle, sterigma and hyphae



Treatment

Topical antifungal agents,

Amphotericin-B , Enilconazole, Miconazole , Terbinafine

Systemic antifungal agents,

- Amphotericin-B (1.5 mg/kg, 5 days)
- Fluconazole (5 mg/kg, 7 days)
- Itraconazole (5-15 mg/kg, 21 days)
- Ketoconazole (10-30mg/kg, 21 days)
- Voriconazole (5-10 mg/kg,7 days)

